



ARCH
ASSOCIATES

APPENDIX 7

SURFACE WATER DRAINAGE CALCULATIONS



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	100.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Attenuation Tank 6	0.010	5.00	56.050		517851.208	131718.663	1.170
54	0.017	5.00	56.227	1200	517844.210	131709.079	1.150
53	0.025	5.00	55.969	1200	517866.412	131682.030	1.125
52	0.032	5.00	55.796	1200	517864.217	131667.707	1.038
Permeable Paving 2	0.018	5.00	57.450		517978.646	131656.282	0.500
50	0.042	5.00	57.122	1200	518023.521	131609.520	0.937
49	0.045	5.00	57.408	1200	518031.433	131649.724	1.630
Attenuation Tank 1	0.063	5.00	57.100		518014.510	131653.054	1.568
J1			56.256		517849.632	131719.735	1.416
46	0.021	5.00	56.748	1200	517951.620	131587.094	1.350
45	0.029	5.00	57.361	1200	518011.520	131589.966	1.350
Attenuation Tank 2	0.053	5.00	56.925		517971.997	131554.531	1.870
43	0.053	5.00	57.503	1200	518003.936	131551.432	1.350
42			57.044	1200	517983.523	131561.945	1.933
Attenuation Tank 8	0.013	5.00	57.221		517982.245	131588.641	1.802
40	0.025	5.00	57.404	1200	518008.930	131623.030	1.150
5	0.033	5.00	57.618	1200	517980.654	131621.672	1.920
48	0.014	5.00	57.447	1200	517979.228	131651.359	2.173
Attenuation Tank 9	0.017	5.00	57.148		517944.969	131649.713	2.076
36	0.044	5.00	57.013	1200	517952.959	131618.205	1.425
35	0.032	5.00	57.096	1500	517935.158	131644.995	2.164
34	0.071	5.00	56.066	1200	517904.423	131624.573	1.285
Rain Garden 2	0.022	5.00	56.767		517890.695	131741.804	0.400
31	0.053	5.00	58.498	1200	517921.077	131813.332	1.350
Attenuation Tank 7	0.047	5.00	56.400		517885.551	131765.182	1.950
Rain Garden 1	0.022	5.00	56.904		517897.668	131751.372	0.400
28	0.021	5.00	56.525	1200	517894.775	131747.338	1.150
27	0.068	5.00	56.541	1200	517891.010	131719.136	1.325
26	0.068	5.00	56.697	1200	517919.416	131757.663	1.425
25			56.600	1200	517905.806	131739.204	1.617
Rain Garden 3	0.016	5.00	57.273		517924.044	131731.815	0.400
Rain Garden 4	0.016	5.00	57.106		517917.071	131722.357	0.400
Attenuation Tank 4			56.460		517921.151	131727.958	1.555
21	0.035	5.00	57.968	1200	517995.400	131762.985	1.425
20	0.022	5.00	58.319	1200	518019.718	131780.471	1.450
19	0.027	5.00	58.189	1200	518002.396	131785.786	1.883
18	0.036	5.00	57.621	1200	517938.505	131785.490	1.425
17			57.840	1200	517950.469	131801.717	1.844
16	0.029	5.00	58.018	1200	517979.422	131792.834	2.448
15	0.043	5.00	57.798	1200	517974.176	131775.736	2.334
14	0.057	5.00	57.464	1200	517956.978	131752.409	2.246



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
9	0.094	5.00	57.252	1200	517943.841	131679.376	1.425
12	0.023	5.00	58.356	1200	518042.145	131764.586	1.350
11	0.034	5.00	58.014	1200	518034.122	131738.433	1.767
10	0.026	5.00	57.667	1200	518015.310	131721.752	1.788
Attenuation Tank 10	0.173	5.00	57.381		517979.367	131689.302	1.788
8	0.034	5.00	57.292	1200	517973.848	131689.037	1.722
7	0.041	5.00	57.474	1200	517974.206	131720.558	1.350
Attenuation Tank 5	0.023	5.00	57.140		517959.023	131699.967	1.740
24	0.035	5.00	57.025	1500	517932.649	131719.413	2.404
6	0.021	5.00	56.380	1500	517898.278	131672.796	1.916
2	0.025	5.00	55.783	2400	517877.897	131655.146	1.527
1			55.690		517873.297	131650.814	1.450
47	0.045	5.00	56.384	1200	517858.206	131728.067	1.250
56	0.031	5.00	56.340	2100	517933.907	131577.117	1.600
Attenuation Tank 3	0.057	5.00	56.375		517905.572	131683.922	1.845
57			57.600	1200	517979.783	131639.729	1.350
58			57.200	1350	517945.777	131709.392	2.071
Rain Garden 5	0.016	5.00	57.250		517939.637	131705.015	0.400
Rain Garden 6	0.014	5.00	57.650		517972.893	131637.406	0.400
Rain Garden 7	0.018	5.00	57.440		517974.433	131604.515	0.400
Permeable Paving 1	0.046	5.00	57.400		518002.110	131547.132	0.500
4			56.500	1200	517954.294	131544.649	1.528
Permeable Paving 3	0.028	5.00	57.540		517973.183	131625.170	0.500
Permeable Paving 4	0.032	5.00	57.310		517974.846	131590.271	0.500
Permeable Paving 5	0.011	5.00	57.000		517980.103	131570.581	0.500
Permeable Paving 6	0.037	5.00	56.750		517974.738	131548.880	0.500
J2			56.415		517881.970	131765.072	2.245
Permeable Paving 7	0.033	5.00	56.450		517903.611	131687.347	0.500
Permeable Paving 8	0.031	5.00	57.450		517954.506	131755.852	0.500
Permeable Paving 9	0.030	5.00	57.825		518015.288	131723.747	0.500
Permeable Paving 10	0.029	5.00	57.575		517999.626	131709.546	0.500
Permeable Paving 11	0.013	5.00	56.300		517884.036	131751.134	0.500
Permeable Paving 12	0.034	5.00	56.545		517902.545	131737.554	0.500
Permeable Paving 13	0.036	5.00	56.875		517932.899	131713.624	0.500
J3			56.161		517929.927	131574.833	1.536



Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.009	2	1	4.963	0.600	54.256	54.240	0.016	310.2	600	8.24	41.6
24.001	52	2	18.572	0.600	54.758	54.631	0.127	146.2	225	5.53	51.8
1.009_1	6	2	26.961	0.600	54.464	54.331	0.133	202.7	525	8.00	43.3
1.007	24	Attenuation Tank 3	44.641	0.600	54.621	54.530	0.091	490.6	525	7.58	44.6
11.003	Attenuation Tank 4	24	14.326	0.600	54.905	54.846	0.059	242.8	300	5.95	50.0
7.004	14	24	40.996	0.600	55.218	54.846	0.372	110.2	300	6.65	47.5
1.005	Attenuation Tank 5	58	16.257	0.600	55.400	55.129	0.271	60.0	375	6.73	47.2
5.000	9	Attenuation Tank 5	25.583	0.600	55.827	55.550	0.277	92.4	225	5.31	52.7
1.004	8	Attenuation Tank 5	18.419	0.600	55.570	55.475	0.095	193.9	300	6.62	47.6
4.000	7	Attenuation Tank 5	25.583	0.600	56.124	55.625	0.499	51.3	150	5.30	52.7
1.003	Attenuation Tank 10	8	5.525	0.600	55.593	55.570	0.023	240.2	300	6.34	48.6
1.002	10	Attenuation Tank 10	48.424	0.600	55.879	55.593	0.286	169.3	300	6.25	48.9
1.001	11	10	25.143	0.600	56.247	55.954	0.293	85.8	225	5.58	51.5
1.000	12	11	27.356	0.600	57.006	56.322	0.684	40.0	150	5.29	52.8
7.003	15	14	28.981	0.600	55.464	55.218	0.246	117.8	300	6.20	49.1
7.002	16	15	17.885	0.600	55.570	55.464	0.106	168.7	300	5.86	50.3
8.001	19	16	24.031	0.600	56.306	55.645	0.661	36.4	225	5.49	51.9
7.001	17	16	30.285	0.600	55.996	55.645	0.351	86.3	225	5.62	51.4
7.000	18	17	20.161	0.600	56.196	55.996	0.200	100.8	225	5.26	52.9
8.000	21	19	23.850	0.600	56.543	56.306	0.237	100.6	225	5.31	52.7
9.000	20	19	18.119	0.600	56.869	56.381	0.488	37.1	150	5.18	53.2
11.002	25	Attenuation Tank 4	19.025	0.600	54.983	54.905	0.078	243.9	300	5.72	51.0
18.000	Rain Garden 3	Attenuation Tank 4	4.821	0.600	56.873	55.600	1.273	3.8	100	5.02	53.9

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.009	1.377	389.3	254.1	0.927	0.850	1.690	0.0	354	1.463
24.001	1.079	42.9	10.8	0.813	0.927	0.058	0.0	77	0.903
1.009_1	1.569	339.7	197.5	1.391	0.927	1.263	0.0	288	1.625
1.007	1.004	217.4	185.4	1.879	1.320	1.151	0.0	375	1.122
11.003	1.004	71.0	50.1	1.255	1.879	0.277	0.0	187	1.086
7.004	1.497	105.8	47.9	1.946	1.879	0.279	0.0	142	1.461
1.005	2.342	258.7	86.7	1.365	1.696	0.508	0.0	149	2.118
5.000	1.361	54.1	17.9	1.200	1.365	0.094	0.0	89	1.226
1.004	1.125	79.6	60.2	1.422	1.365	0.350	0.0	195	1.233
4.000	1.408	24.9	7.8	1.200	1.365	0.041	0.0	58	1.249
1.003	1.010	71.4	55.4	1.488	1.422	0.315	0.0	199	1.111
1.002	1.205	85.2	20.0	1.488	1.488	0.113	0.0	99	0.991
1.001	1.412	56.1	10.7	1.542	1.488	0.058	0.0	66	1.093
1.000	1.596	28.2	4.5	1.200	1.542	0.023	0.0	40	1.167
7.003	1.447	102.3	34.0	2.034	1.946	0.191	0.0	119	1.304
7.002	1.207	85.3	27.1	2.148	2.034	0.149	0.0	116	1.075
8.001	2.176	86.5	15.7	1.658	2.148	0.084	0.0	65	1.662
7.001	1.408	56.0	6.6	1.619	2.148	0.036	0.0	52	0.955
7.000	1.302	51.8	6.8	1.200	1.619	0.036	0.0	55	0.908
8.000	1.303	51.8	6.6	1.200	1.658	0.035	0.0	54	0.900
9.000	1.657	29.3	4.2	1.300	1.658	0.022	0.0	38	1.181
11.002	1.002	70.8	45.4	1.317	1.255	0.246	0.0	175	1.061
18.000	4.002	31.4	3.0	0.300	0.760	0.016	0.0	21	2.511



Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
17.000	Rain Garden 4	Attenuation Tank 4	6.929	0.600	56.706	55.600	1.106	6.3	100	5.04	53.8
11.001	28	25	13.706	0.600	55.375	55.133	0.242	56.6	150	5.31	52.7
14.000	27	25	24.933	0.600	55.216	55.058	0.158	157.8	225	5.40	52.3
15.000	26	25	22.934	0.600	55.272	55.058	0.214	107.2	225	5.30	52.7
12.000	Rain Garden 2	28	6.875	0.600	56.367	56.251	0.116	59.3	100	5.11	53.5
35.001	Attenuation Tank 7	J2	3.583	0.600	54.450	54.170	0.280	12.8	150	5.49	51.9
13.000	Rain Garden 1	28	4.964	0.600	56.504	56.251	0.253	19.6	100	5.05	53.8
35.000	31	Attenuation Tank 7	59.837	0.600	57.148	54.450	2.698	22.2	150	5.46	52.0
21.006	34	2	40.476	0.600	54.781	54.556	0.225	179.9	300	8.18	42.8
25.006	56	J3	4.589	0.600	54.740	54.625	0.115	39.9	375	7.41	45.0
21.005	35	34	36.901	0.600	54.932	54.781	0.151	244.4	300	7.60	44.5
21.004	Attenuation Tank 9	35	10.886	0.600	55.072	55.007	0.065	167.5	225	6.99	46.3
23.000	36	35	32.165	0.600	55.588	55.007	0.581	55.4	225	5.30	52.7
21.003	48	Attenuation Tank 9	34.299	0.600	55.274	55.072	0.202	169.8	225	6.81	46.9
21.002	Attenuation Tank 1	48	35.323	0.600	55.532	55.274	0.258	136.9	225	6.24	48.9
26.001	57	5	18.078	0.600	56.250	55.773	0.477	37.9	150	5.30	52.7
25.001	5	Attenuation Tank 8	33.069	0.600	55.698	55.419	0.279	118.5	225	5.82	50.5
25.000	40	5	28.309	0.600	56.254	55.773	0.481	58.9	150	5.36	52.5
34.000	46	56	20.330	0.600	55.398	54.965	0.433	47.0	150	5.23	53.0
28.000	45	Attenuation Tank 8	29.305	0.600	56.011	55.494	0.517	56.7	150	5.36	52.5
25.002	Attenuation Tank 8	42	26.727	0.600	55.419	55.186	0.233	114.7	225	6.18	49.1
25.003	42	Attenuation Tank 2	13.705	0.600	55.111	55.055	0.056	244.7	300	6.41	48.3
31.001	43	42	22.961	0.600	56.153	55.261	0.892	25.7	150	5.25	52.9
36.000	54	Attenuation Tank 6	11.867	0.600	55.077	54.955	0.122	97.3	150	5.19	53.2

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
17.000	3.109	24.4	3.0	0.300	0.760	0.016	0.0	24	2.119
11.001	1.339	23.7	14.6	1.000	1.317	0.077	0.0	85	1.407
14.000	1.038	41.3	12.8	1.100	1.317	0.068	0.0	86	0.917
15.000	1.262	50.2	12.9	1.200	1.317	0.068	0.0	78	1.063
12.000	1.002	7.9	4.2	0.300	0.174	0.022	0.0	52	1.018
35.001	2.831	50.0	18.7	1.800	2.095	0.100	0.0	64	2.632
13.000	1.751	13.8	4.2	0.300	0.174	0.022	0.0	38	1.539
35.000	2.147	37.9	9.9	1.200	1.800	0.053	0.0	52	1.815
21.006	1.169	82.6	53.4	0.985	0.927	0.345	0.0	176	1.241
25.006	2.875	317.6	72.2	1.225	1.161	0.443	0.0	121	2.347
21.005	1.001	70.8	44.0	1.864	0.985	0.274	0.0	171	1.053
21.004	1.007	40.0	33.1	1.851	1.864	0.198	0.0	156	1.121
23.000	1.761	70.0	8.3	1.200	1.864	0.044	0.0	52	1.195
21.003	1.000	39.8	30.7	1.948	1.851	0.181	0.0	149	1.101
21.002	1.115	44.3	26.5	1.343	1.948	0.150	0.0	125	1.163
26.001	1.640	29.0	2.6	1.200	1.695	0.014	0.0	30	1.016
25.001	1.200	47.7	18.1	1.695	1.577	0.099	0.0	96	1.120
25.000	1.313	23.2	4.6	1.000	1.695	0.025	0.0	45	1.028
34.000	1.472	26.0	4.0	1.200	1.225	0.021	0.0	40	1.067
28.000	1.338	23.7	5.5	1.200	1.577	0.029	0.0	50	1.097
25.002	1.220	48.5	34.1	1.577	1.633	0.192	0.0	139	1.318
25.003	1.000	70.7	52.6	1.633	1.570	0.301	0.0	194	1.093
31.001	1.992	35.2	19.0	1.200	1.633	0.099	0.0	78	2.027
36.000	1.019	18.0	3.3	1.000	0.945	0.017	0.0	44	0.780



Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
21.001	49	Attenuation Tank 1	17.248	0.600	55.778	55.532	0.246	70.1	225	5.71	51.0
21.000	50	49	40.975	0.600	56.185	55.778	0.407	100.7	225	5.52	51.8
37.000	47	Attenuation Tank 6	11.722	0.600	55.134	54.955	0.179	65.5	150	5.16	53.3
24.000	53	52	14.490	0.600	54.844	54.758	0.086	168.5	225	5.24	53.0
36.001	Attenuation Tank 6	J1	1.906	0.600	54.880	54.840	0.040	47.7	225	5.21	53.1
31.000	Permeable Paving 1	43	4.671	0.600	56.900	56.820	0.080	58.4	150	5.06	53.8
1.008	Attenuation Tank 3	6	13.304	0.600	54.530	54.464	0.066	201.6	525	7.72	44.1
25.004	Attenuation Tank 2	4	20.274	0.600	55.055	54.972	0.083	244.3	300	6.75	47.1
1.006	58	24	16.516	0.600	55.129	54.771	0.358	46.1	375	6.83	46.8
6.000	Rain Garden 5	58	7.540	0.600	56.850	56.723	0.127	59.4	100	5.13	53.5
26.000	Rain Garden 6	57	7.271	0.600	57.250	57.127	0.123	59.1	100	5.12	53.5
29.000	Rain Garden 7	Attenuation Tank 8	17.692	0.600	57.040	56.000	1.040	17.0	100	5.16	53.3
25.005	4	56	38.338	0.600	54.972	54.815	0.157	244.2	300	7.39	45.1
27.000	Permeable Paving 3	5	8.249	0.600	57.040	56.823	0.217	38.0	100	5.11	53.5
22.000	Permeable Paving 2	48	4.957	0.600	56.950	56.000	0.950	5.2	100	5.02	53.9
30.000	Permeable Paving 4	Attenuation Tank 8	7.576	0.600	56.810	56.000	0.810	9.4	100	5.05	53.8
32.000	Permeable Paving 5	42	9.289	0.600	56.500	56.187	0.313	29.7	100	5.11	53.5
33.000	Permeable Paving 6	Attenuation Tank 2	6.281	0.600	56.250	55.750	0.500	12.6	100	5.05	53.8
20.000	Permeable Paving 7	Attenuation Tank 3	3.947	0.600	55.950	55.600	0.350	11.3	100	5.03	53.9
10.000	Permeable Paving 8	14	4.239	0.600	56.950	56.000	0.950	4.5	100	5.02	53.9
2.000	Permeable Paving 9	10	1.995	0.600	57.325	57.291	0.034	58.7	100	5.03	53.9
3.000	Permeable Paving 10	Attenuation Tank 10	28.640	0.600	57.075	56.400	0.675	42.4	100	5.40	52.3
11.000	Permeable Paving 11	28	11.390	0.600	55.800	55.425	0.375	30.4	100	5.14	53.4
16.000	Permeable Paving 12	25	3.655	0.600	56.045	55.983	0.062	58.9	100	5.06	53.7

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
21.001	1.564	62.2	16.0	1.405	1.343	0.087	0.0	78	1.317
21.000	1.303	51.8	7.9	0.712	1.405	0.042	0.0	59	0.948
37.000	1.244	22.0	8.6	1.100	0.945	0.045	0.0	65	1.171
24.000	1.004	39.9	4.8	0.900	0.813	0.025	0.0	53	0.686
36.001	1.899	75.5	13.9	0.945	1.191	0.072	0.0	65	1.461
31.000	1.319	23.3	9.0	0.350	0.533	0.046	0.0	65	1.236
1.008	1.574	340.7	198.0	1.320	1.391	1.241	0.0	288	1.630
25.004	1.001	70.8	66.7	1.570	1.228	0.391	0.0	233	1.133
1.006	2.673	295.2	88.7	1.696	1.879	0.524	0.0	140	2.348
6.000	1.001	7.9	3.0	0.300	0.377	0.016	0.0	43	0.931
26.000	1.003	7.9	2.6	0.300	0.373	0.014	0.0	39	0.899
29.000	1.882	14.8	3.5	0.300	1.121	0.018	0.0	33	1.544
25.005	1.001	70.8	63.8	1.228	1.225	0.391	0.0	224	1.128
27.000	1.254	9.9	5.3	0.400	0.695	0.028	0.0	53	1.282
22.000	3.408	26.8	3.5	0.400	1.347	0.018	0.0	25	2.367
30.000	2.542	20.0	6.3	0.400	1.121	0.032	0.0	39	2.257
32.000	1.421	11.2	2.0	0.400	0.757	0.011	0.0	29	1.089
33.000	2.192	17.2	7.2	0.400	1.075	0.037	0.0	45	2.091
20.000	2.314	18.2	6.3	0.400	0.675	0.033	0.0	41	2.115
10.000	3.686	29.0	6.0	0.400	1.364	0.031	0.0	31	2.910
2.000	1.007	7.9	5.8	0.400	0.276	0.030	0.0	64	1.100
3.000	1.187	9.3	5.5	0.400	0.881	0.029	0.0	56	1.240
11.000	1.405	11.0	2.5	0.400	1.000	0.013	0.0	32	1.137
16.000	1.005	7.9	6.7	0.400	0.517	0.034	0.0	71	1.127



Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
19.000	Permeable Paving 13	24	5.794	0.600	56.375	56.277	0.098	59.1	100	5.10	53.6

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
19.000	1.003	7.9	7.0	0.400	0.648	0.036	0.0	73	1.132

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.009	4.963	310.2	600	Circular	55.783	54.256	0.927	55.690	54.240	0.850
24.001	18.572	146.2	225	Circular	55.796	54.758	0.813	55.783	54.631	0.927
1.009_1	26.961	202.7	525	Circular	56.380	54.464	1.391	55.783	54.331	0.927
1.007	44.641	490.6	525	Circular	57.025	54.621	1.879	56.375	54.530	1.320
11.003	14.326	242.8	300	Circular	56.460	54.905	1.255	57.025	54.846	1.879
7.004	40.996	110.2	300	Circular	57.464	55.218	1.946	57.025	54.846	1.879
1.005	16.257	60.0	375	Circular	57.140	55.400	1.365	57.200	55.129	1.696
5.000	25.583	92.4	225	Circular	57.252	55.827	1.200	57.140	55.550	1.365
1.004	18.419	193.9	300	Circular	57.292	55.570	1.422	57.140	55.475	1.365
4.000	25.583	51.3	150	Circular	57.474	56.124	1.200	57.140	55.625	1.365
1.003	5.525	240.2	300	Circular	57.381	55.593	1.488	57.292	55.570	1.422
1.002	48.424	169.3	300	Circular	57.667	55.879	1.488	57.381	55.593	1.488
1.001	25.143	85.8	225	Circular	58.014	56.247	1.542	57.667	55.954	1.488
1.000	27.356	40.0	150	Circular	58.356	57.006	1.200	58.014	56.322	1.542
7.003	28.981	117.8	300	Circular	57.798	55.464	2.034	57.464	55.218	1.946
7.002	17.885	168.7	300	Circular	58.018	55.570	2.148	57.798	55.464	2.034
8.001	24.031	36.4	225	Circular	58.189	56.306	1.658	58.018	55.645	2.148
7.001	30.285	86.3	225	Circular	57.840	55.996	1.619	58.018	55.645	2.148

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.009	2	2400	Manhole	Adoptable	1		Junction	
24.001	52	1200	Manhole	Adoptable	2	2400	Manhole	Adoptable
1.009_1	6	1500	Manhole	Adoptable	2	2400	Manhole	Adoptable
1.007	24	1500	Manhole	Adoptable	Attenuation Tank 3		Junction	
11.003	Attenuation Tank 4		Junction		24	1500	Manhole	Adoptable
7.004	14	1200	Manhole	Adoptable	24	1500	Manhole	Adoptable
1.005	Attenuation Tank 5		Junction		58	1350	Manhole	Adoptable
5.000	9	1200	Manhole	Adoptable	Attenuation Tank 5		Junction	
1.004	8	1200	Manhole	Adoptable	Attenuation Tank 5		Junction	
4.000	7	1200	Manhole	Adoptable	Attenuation Tank 5		Junction	
1.003	Attenuation Tank 10		Junction		8	1200	Manhole	Adoptable
1.002	10	1200	Manhole	Adoptable	Attenuation Tank 10		Junction	
1.001	11	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
1.000	12	1200	Manhole	Adoptable	11	1200	Manhole	Adoptable
7.003	15	1200	Manhole	Adoptable	14	1200	Manhole	Adoptable
7.002	16	1200	Manhole	Adoptable	15	1200	Manhole	Adoptable
8.001	19	1200	Manhole	Adoptable	16	1200	Manhole	Adoptable
7.001	17	1200	Manhole	Adoptable	16	1200	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
7.000	20.161	100.8	225	Circular	57.621	56.196	1.200	57.840	55.996	1.619
8.000	23.850	100.6	225	Circular	57.968	56.543	1.200	58.189	56.306	1.658
9.000	18.119	37.1	150	Circular	58.319	56.869	1.300	58.189	56.381	1.658
11.002	19.025	243.9	300	Circular	56.600	54.983	1.317	56.460	54.905	1.255
18.000	4.821	3.8	100	Circular	57.273	56.873	0.300	56.460	55.600	0.760
17.000	6.929	6.3	100	Circular	57.106	56.706	0.300	56.460	55.600	0.760
11.001	13.706	56.6	150	Circular	56.525	55.375	1.000	56.600	55.133	1.317
14.000	24.933	157.8	225	Circular	56.541	55.216	1.100	56.600	55.058	1.317
15.000	22.934	107.2	225	Circular	56.697	55.272	1.200	56.600	55.058	1.317
12.000	6.875	59.3	100	Circular	56.767	56.367	0.300	56.525	56.251	0.174
35.001	3.583	12.8	150	Circular	56.400	54.450	1.800	56.415	54.170	2.095
13.000	4.964	19.6	100	Circular	56.904	56.504	0.300	56.525	56.251	0.174
35.000	59.837	22.2	150	Circular	58.498	57.148	1.200	56.400	54.450	1.800
21.006	40.476	179.9	300	Circular	56.066	54.781	0.985	55.783	54.556	0.927
25.006	4.589	39.9	375	Circular	56.340	54.740	1.225	56.161	54.625	1.161
21.005	36.901	244.4	300	Circular	57.096	54.932	1.864	56.066	54.781	0.985
21.004	10.886	167.5	225	Circular	57.148	55.072	1.851	57.096	55.007	1.864
23.000	32.165	55.4	225	Circular	57.013	55.588	1.200	57.096	55.007	1.864
21.003	34.299	169.8	225	Circular	57.447	55.274	1.948	57.148	55.072	1.851
21.002	35.323	136.9	225	Circular	57.100	55.532	1.343	57.447	55.274	1.948
26.001	18.078	37.9	150	Circular	57.600	56.250	1.200	57.618	55.773	1.695
25.001	33.069	118.5	225	Circular	57.618	55.698	1.695	57.221	55.419	1.577
25.000	28.309	58.9	150	Circular	57.404	56.254	1.000	57.618	55.773	1.695
34.000	20.330	47.0	150	Circular	56.748	55.398	1.200	56.340	54.965	1.225
28.000	29.305	56.7	150	Circular	57.361	56.011	1.200	57.221	55.494	1.577

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
7.000	18	1200	Manhole	Adoptable	17	1200	Manhole	Adoptable
8.000	21	1200	Manhole	Adoptable	19	1200	Manhole	Adoptable
9.000	20	1200	Manhole	Adoptable	19	1200	Manhole	Adoptable
11.002	25	1200	Manhole	Adoptable	Attenuation Tank 4		Junction	
18.000	Rain Garden 3		Junction		Attenuation Tank 4		Junction	
17.000	Rain Garden 4		Junction		Attenuation Tank 4		Junction	
11.001	28	1200	Manhole	Adoptable	25	1200	Manhole	Adoptable
14.000	27	1200	Manhole	Adoptable	25	1200	Manhole	Adoptable
15.000	26	1200	Manhole	Adoptable	25	1200	Manhole	Adoptable
12.000	Rain Garden 2		Junction		28	1200	Manhole	Adoptable
35.001	Attenuation Tank 7		Junction		J2		Junction	
13.000	Rain Garden 1		Junction		28	1200	Manhole	Adoptable
35.000	31	1200	Manhole	Adoptable	Attenuation Tank 7		Junction	
21.006	34	1200	Manhole	Adoptable	2	2400	Manhole	Adoptable
25.006	56	2100	Manhole	Adoptable	J3		Junction	
21.005	35	1500	Manhole	Adoptable	34	1200	Manhole	Adoptable
21.004	Attenuation Tank 9		Junction		35	1500	Manhole	Adoptable
23.000	36	1200	Manhole	Adoptable	35	1500	Manhole	Adoptable
21.003	48	1200	Manhole	Adoptable	Attenuation Tank 9		Junction	
21.002	Attenuation Tank 1		Junction		48	1200	Manhole	Adoptable
26.001	57	1200	Manhole	Adoptable	5	1200	Manhole	Adoptable
25.001	5	1200	Manhole	Adoptable	Attenuation Tank 8		Junction	
25.000	40	1200	Manhole	Adoptable	5	1200	Manhole	Adoptable
34.000	46	1200	Manhole	Adoptable	56	2100	Manhole	Adoptable
28.000	45	1200	Manhole	Adoptable	Attenuation Tank 8		Junction	



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
25.002	26.727	114.7	225	Circular	57.221	55.419	1.577	57.044	55.186	1.633
25.003	13.705	244.7	300	Circular	57.044	55.111	1.633	56.925	55.055	1.570
31.001	22.961	25.7	150	Circular	57.503	56.153	1.200	57.044	55.261	1.633
36.000	11.867	97.3	150	Circular	56.227	55.077	1.000	56.050	54.955	0.945
21.001	17.248	70.1	225	Circular	57.408	55.778	1.405	57.100	55.532	1.343
21.000	40.975	100.7	225	Circular	57.122	56.185	0.712	57.408	55.778	1.405
37.000	11.722	65.5	150	Circular	56.384	55.134	1.100	56.050	54.955	0.945
24.000	14.490	168.5	225	Circular	55.969	54.844	0.900	55.796	54.758	0.813
36.001	1.906	47.7	225	Circular	56.050	54.880	0.945	56.256	54.840	1.191
31.000	4.671	58.4	150	Circular	57.400	56.900	0.350	57.503	56.820	0.533
1.008	13.304	201.6	525	Circular	56.375	54.530	1.320	56.380	54.464	1.391
25.004	20.274	244.3	300	Circular	56.925	55.055	1.570	56.500	54.972	1.228
1.006	16.516	46.1	375	Circular	57.200	55.129	1.696	57.025	54.771	1.879
6.000	7.540	59.4	100	Circular	57.250	56.850	0.300	57.200	56.723	0.377
26.000	7.271	59.1	100	Circular	57.650	57.250	0.300	57.600	57.127	0.373
29.000	17.692	17.0	100	Circular	57.440	57.040	0.300	57.221	56.000	1.121
25.005	38.338	244.2	300	Circular	56.500	54.972	1.228	56.340	54.815	1.225
27.000	8.249	38.0	100	Circular	57.540	57.040	0.400	57.618	56.823	0.695
22.000	4.957	5.2	100	Circular	57.450	56.950	0.400	57.447	56.000	1.347
30.000	7.576	9.4	100	Circular	57.310	56.810	0.400	57.221	56.000	1.121
32.000	9.289	29.7	100	Circular	57.000	56.500	0.400	57.044	56.187	0.757
33.000	6.281	12.6	100	Circular	56.750	56.250	0.400	56.925	55.750	1.075
20.000	3.947	11.3	100	Circular	56.450	55.950	0.400	56.375	55.600	0.675
10.000	4.239	4.5	100	Circular	57.450	56.950	0.400	57.464	56.000	1.364
2.000	1.995	58.7	100	Circular	57.825	57.325	0.400	57.667	57.291	0.276

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
25.002	Attenuation Tank 8		Junction		42	1200	Manhole	Adoptable
25.003	42	1200	Manhole	Adoptable	Attenuation Tank 2		Junction	
31.001	43	1200	Manhole	Adoptable	42	1200	Manhole	Adoptable
36.000	54	1200	Manhole	Adoptable	Attenuation Tank 6		Junction	
21.001	49	1200	Manhole	Adoptable	Attenuation Tank 1		Junction	
21.000	50	1200	Manhole	Adoptable	49	1200	Manhole	Adoptable
37.000	47	1200	Manhole	Adoptable	Attenuation Tank 6		Junction	
24.000	53	1200	Manhole	Adoptable	52	1200	Manhole	Adoptable
36.001	Attenuation Tank 6		Junction		J1		Junction	
31.000	Permeable Paving 1		Junction		43	1200	Manhole	Adoptable
1.008	Attenuation Tank 3		Junction		6	1500	Manhole	Adoptable
25.004	Attenuation Tank 2		Junction		4	1200	Manhole	Adoptable
1.006	58	1350	Manhole	Adoptable	24	1500	Manhole	Adoptable
6.000	Rain Garden 5		Junction		58	1350	Manhole	Adoptable
26.000	Rain Garden 6		Junction		57	1200	Manhole	Adoptable
29.000	Rain Garden 7		Junction		Attenuation Tank 8		Junction	
25.005	4	1200	Manhole	Adoptable	56	2100	Manhole	Adoptable
27.000	Permeable Paving 3		Junction		5	1200	Manhole	Adoptable
22.000	Permeable Paving 2		Junction		48	1200	Manhole	Adoptable
30.000	Permeable Paving 4		Junction		Attenuation Tank 8		Junction	
32.000	Permeable Paving 5		Junction		42	1200	Manhole	Adoptable
33.000	Permeable Paving 6		Junction		Attenuation Tank 2		Junction	
20.000	Permeable Paving 7		Junction		Attenuation Tank 3		Junction	
10.000	Permeable Paving 8		Junction		14	1200	Manhole	Adoptable
2.000	Permeable Paving 9		Junction		10	1200	Manhole	Adoptable

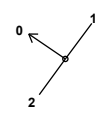
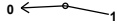


Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.000	28.640	42.4	100	Circular	57.575	57.075	0.400	57.381	56.400	0.881
11.000	11.390	30.4	100	Circular	56.300	55.800	0.400	56.525	55.425	1.000
16.000	3.655	58.9	100	Circular	56.545	56.045	0.400	56.600	55.983	0.517
19.000	5.794	59.1	100	Circular	56.875	56.375	0.400	57.025	56.277	0.648

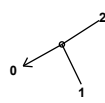
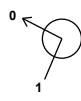
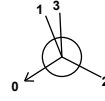
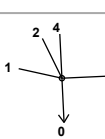
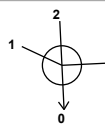
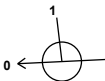
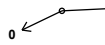
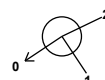
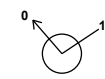
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.000	Permeable Paving 10		Junction		Attenuation Tank 10		Junction	
11.000	Permeable Paving 11		Junction	28		1200	Manhole	Adoptable
16.000	Permeable Paving 12		Junction	25		1200	Manhole	Adoptable
19.000	Permeable Paving 13		Junction	24		1500	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
Attenuation Tank 6	517851.208	131718.663	56.050	1.170			1	37.000	54.955	150
						2	36.000	54.955	150	
						0	36.001	54.880	225	
54	517844.210	131709.079	56.227	1.150	1200		0	36.000	55.077	150
53	517866.412	131682.030	55.969	1.125	1200		0	24.000	54.844	225
52	517864.217	131667.707	55.796	1.038	1200		1	24.000	54.758	225
							0	24.001	54.758	225
Permeable Paving 2	517978.646	131656.282	57.450	0.500			0	22.000	56.950	100
50	518023.521	131609.520	57.122	0.937	1200		0	21.000	56.185	225
49	518031.433	131649.724	57.408	1.630	1200		1	21.000	55.778	225
							0	21.001	55.778	225
Attenuation Tank 1	518014.510	131653.054	57.100	1.568			1	21.001	55.532	225
							0	21.002	55.532	225
J1	517849.632	131719.735	56.256	1.416			1	36.001	54.840	225

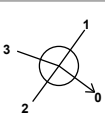
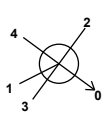
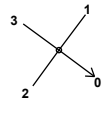


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
46	517951.620	131587.094	56.748	1.350	1200		0	34.000	55.398	150
45	518011.520	131589.966	57.361	1.350	1200		0	28.000	56.011	150
Attenuation Tank 2	517971.997	131554.531	56.925	1.870			1 2	33.000 25.003	55.750 55.055	100 300
43	518003.936	131551.432	57.503	1.350	1200		0 1	25.004 31.000	55.055 56.820	300 150
42	517983.523	131561.945	57.044	1.933	1200		0 1 2 3	25.003 32.000 31.001 25.002	55.111 56.187 55.261 55.186	300 100 150 225
Attenuation Tank 8	517982.245	131588.641	57.221	1.802			0 1 2 3 4	25.002 30.000 29.000 28.000 25.001	55.419 56.000 56.000 55.494 55.419	225 100 100 150 225
40	518008.930	131623.030	57.404	1.150	1200		0	25.000	56.254	150
5	517980.654	131621.672	57.618	1.920	1200		0 1 2 3	25.001 27.000 26.001 25.000	55.698 56.823 55.773 55.773	225 100 150 150
48	517979.228	131651.359	57.447	2.173	1200		0 1 2	21.002 22.000 21.003	55.274 56.000 55.274	225 100 225
Attenuation Tank 9	517944.969	131649.713	57.148	2.076			0 1	21.004 21.003	55.072 55.072	225 225
36	517952.959	131618.205	57.013	1.425	1200		0	23.000	55.588	225
35	517935.158	131644.995	57.096	2.164	1500		0 1 2	21.005 23.000 21.004	54.932 55.007 55.007	300 225 225
34	517904.423	131624.573	56.066	1.285	1200		0 1	21.006 21.005	54.781 54.781	300 300

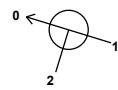
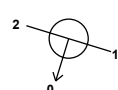


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Rain Garden 2	517890.695	131741.804	56.767	0.400					
						0	12.000	56.367	100
31	517921.077	131813.332	58.498	1.350	1200				
						0	35.000	57.148	150
Attenuation Tank 7	517885.551	131765.182	56.400	1.950					
						1	35.000	54.450	150
						0	35.001	54.450	150
Rain Garden 1	517897.668	131751.372	56.904	0.400					
						0	13.000	56.504	100
28	517894.775	131747.338	56.525	1.150	1200				
						1	13.000	56.251	100
						2	12.000	56.251	100
						3	11.000	55.425	100
						0	11.001	55.375	150
27	517891.010	131719.136	56.541	1.325	1200				
						0	14.000	55.216	225
26	517919.416	131757.663	56.697	1.425	1200				
						0	15.000	55.272	225
25	517905.806	131739.204	56.600	1.617	1200				
						1	16.000	55.983	100
						2	15.000	55.058	225
						3	14.000	55.058	225
						4	11.001	55.133	150
						0	11.002	54.983	300
Rain Garden 3	517924.044	131731.815	57.273	0.400					
						0	18.000	56.873	100
Rain Garden 4	517917.071	131722.357	57.106	0.400					
						0	17.000	56.706	100
Attenuation Tank 4	517921.151	131727.958	56.460	1.555					
						1	18.000	55.600	100
						2	17.000	55.600	100
						3	11.002	54.905	300
						0	11.003	54.905	300
21	517995.400	131762.985	57.968	1.425	1200				
						0	8.000	56.543	225
20	518019.718	131780.471	58.319	1.450	1200				
						0	9.000	56.869	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
19	518002.396	131785.786	58.189	1.883	1200		1	9.000	56.381	150
							2	8.000	56.306	225
							0	8.001	56.306	225
18	517938.505	131785.490	57.621	1.425	1200		0	7.000	56.196	225
17	517950.469	131801.717	57.840	1.844	1200		1	7.000	55.996	225
							0	7.001	55.996	225
16	517979.422	131792.834	58.018	2.448	1200		1	8.001	55.645	225
							2	7.001	55.645	225
							0	7.002	55.570	300
15	517974.176	131775.736	57.798	2.334	1200		1	7.002	55.464	300
							0	7.003	55.464	300
14	517956.978	131752.409	57.464	2.246	1200		1	10.000	56.000	100
							2	7.003	55.218	300
							0	7.004	55.218	300
9	517943.841	131679.376	57.252	1.425	1200		0	5.000	55.827	225
12	518042.145	131764.586	58.356	1.350	1200		0	1.000	57.006	150
11	518034.122	131738.433	58.014	1.767	1200		1	1.000	56.322	150
							0	1.001	56.247	225
10	518015.310	131721.752	57.667	1.788	1200		1	2.000	57.291	100
							2	1.001	55.954	225
							0	1.002	55.879	300
Attenuation Tank 10	517979.367	131689.302	57.381	1.788			1	3.000	56.400	100
							2	1.002	55.593	300
							0	1.003	55.593	300
8	517973.848	131689.037	57.292	1.722	1200		1	1.003	55.570	300
							0	1.004	55.570	300
7	517974.206	131720.558	57.474	1.350	1200		0	4.000	56.124	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
Attenuation Tank 5	517959.023	131699.967	57.140	1.740			1 2 3 0	5.000 4.000 1.004 1.005	55.550 55.625 55.475 55.400	225 150 300 375
24	517932.649	131719.413	57.025	2.404	1500		1 2 3 4 0	19.000 11.003 7.004 1.006 1.007	56.277 54.846 54.846 54.771 54.621	100 300 300 375 525
6	517898.278	131672.796	56.380	1.916	1500		1 0	1.008 1.009_1	54.464 54.464	525 525
2	517877.897	131655.146	55.783	1.527	2400		1 2 3 0	24.001 21.006 1.009_1 1.009	54.631 54.556 54.331 54.256	225 300 525 600
1	517873.297	131650.814	55.690	1.450			1	1.009	54.240	600
47	517858.206	131728.067	56.384	1.250	1200		0	37.000	55.134	150
56	517933.907	131577.117	56.340	1.600	2100		1 2 0	34.000 25.005 25.006	54.965 54.815 54.740	150 300 375
Attenuation Tank 3	517905.572	131683.922	56.375	1.845			1 2 0	20.000 1.007 1.008	55.600 54.530 54.530	100 525 525
57	517979.783	131639.729	57.600	1.350	1200		1 0	26.000 26.001	57.127 56.250	100 150
58	517945.777	131709.392	57.200	2.071	1350		1 2 0	6.000 1.005 1.006	56.723 55.129 55.129	100 375 375
Rain Garden 5	517939.637	131705.015	57.250	0.400			0	6.000	56.850	100
Rain Garden 6	517972.893	131637.406	57.650	0.400			0	26.000	57.250	100
Rain Garden 7	517974.433	131604.515	57.440	0.400			0	29.000	57.040	100



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Permeable Paving 1	518002.110	131547.132	57.400	0.500					
4	517954.294	131544.649	56.500	1.528	1200	0	31.000	56.900	150
						1	25.004	54.972	300
						0	25.005	54.972	300
Permeable Paving 3	517973.183	131625.170	57.540	0.500					
Permeable Paving 4	517974.846	131590.271	57.310	0.500		0	27.000	57.040	100
						0	30.000	56.810	100
						0	32.000	56.500	100
Permeable Paving 5	517980.103	131570.581	57.000	0.500					
Permeable Paving 6	517974.738	131548.880	56.750	0.500		0	33.000	56.250	100
						1	35.001	54.170	150
						0	20.000	55.950	100
J2	517881.970	131765.072	56.415	2.245					
Permeable Paving 7	517903.611	131687.347	56.450	0.500					
Permeable Paving 8	517954.506	131755.852	57.450	0.500		0	10.000	56.950	100
						0	2.000	57.325	100
						0	3.000	57.075	100
Permeable Paving 9	518015.288	131723.747	57.825	0.500					
Permeable Paving 10	517999.626	131709.546	57.575	0.500		0	11.000	55.800	100
						0	16.000	56.045	100
						0	11.000	55.800	100
Permeable Paving 11	517884.036	131751.134	56.300	0.500					
Permeable Paving 12	517902.545	131737.554	56.545	0.500		0	16.000	56.045	100
						0	16.000	56.045	100
						0	16.000	56.045	100



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Permeable Paving 13	517932.899	131713.624	56.875	0.500					
						0	19.000	56.375	100
J3	517929.927	131574.833	56.161	1.536			1	25.006	54.625 375

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	20.0		

Storm Durations

15 | 30 | 60 | 120 | 240 | 720 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	45	10	0

Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.256	Product Number	CTL-SHE-0288-5000-1527-5000
Design Depth (m)	1.527	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	50.0	Min Node Diameter (mm)	2400

Node Attenuation Tank 3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.530	Product Number	CTL-SHE-0194-2000-1342-2000
Design Depth (m)	1.342	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	20.0	Min Node Diameter (mm)	1800

Node Attenuation Tank 5 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	55.400	Product Number	CTL-SHE-0139-1000-1467-1000
Design Depth (m)	1.467	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	10.0	Min Node Diameter (mm)	1500



Node 35 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	54.932	Product Number	CTL-SHE-0125-8000-1447-8000
Design Depth (m)	1.447	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.0	Min Node Diameter (mm)	1500

Node 56 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.740	Product Number	CTL-SHE-0199-2200-1559-2200
Design Depth (m)	1.559	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	22.0	Min Node Diameter (mm)	1800

Node Permeable Paving 1 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.900	Diameter (m)	0.027		

Node Permeable Paving 2 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.950	Diameter (m)	0.027		

Node Permeable Paving 3 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	57.040	Diameter (m)	0.027		

Node Permeable Paving 4 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.810	Diameter (m)	0.027		

Node Permeable Paving 5 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.500	Diameter (m)	0.027		

Node Permeable Paving 6 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.250	Diameter (m)	0.027		

Node Permeable Paving 7 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	55.950	Diameter (m)	0.027		



Node Permeable Paving 8 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.950	Diameter (m)	0.027		

Node Permeable Paving 9 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	57.325	Diameter (m)	0.027		

Node Permeable Paving 10 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	57.075	Diameter (m)	0.027		

Node Permeable Paving 11 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	55.800	Diameter (m)	0.027		

Node Permeable Paving 12 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.045	Diameter (m)	0.027		

Node Permeable Paving 13 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	56.375	Diameter (m)	0.027		

Node Attenuation Tank 7 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.450	Product Number	CTL-SHE-0128-8500-1506-8500
Design Depth (m)	1.506	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.5	Min Node Diameter (mm)	1500

Node Attenuation Tank 6 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.880	Product Number	CTL-SHE-0131-8000-1048-8000
Design Depth (m)	1.048	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.0	Min Node Diameter (mm)	1200



Node Permeable Paving 8 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.000	Slope (1:X)	90.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	15.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node Permeable Paving 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.000	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	179	Depth (m)	
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	17.500		

Node Permeable Paving 7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.000	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	16.250		

Node Permeable Paving 9 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.375	Slope (1:X)	80.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node Permeable Paving 10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.125	Slope (1:X)	80.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node Permeable Paving 11 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.850	Slope (1:X)	90.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	137	Depth (m)	
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	26.000		

Node Permeable Paving 12 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.095	Slope (1:X)	90.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	34.000		

Node Permeable Paving 13 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.425	Slope (1:X)	90.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	24.000		



Node Attenuation Tank 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.532	Depth (m)	0.690
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	154	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	5.600	Number Required	1
Porosity	0.95	Pit Length (m)	13.600		

Node Permeable Paving 6 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.300	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	18.500		

Node Attenuation Tank 2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.055	Depth (m)	1.050
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	85	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	5.400	Number Required	1
Porosity	0.95	Pit Length (m)	12.000		

Node Attenuation Tank 8 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.419	Depth (m)	1.050
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	48	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	4.000	Number Required	1
Porosity	0.95	Pit Length (m)	17.600		

Node Permeable Paving 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.090	Slope (1:X)	140.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	27.600	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node Rain Garden 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.504	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	20.000		

Node Rain Garden 2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.367	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	8	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	20.000		

Node Rain Garden 3 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.873	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	13.000		



Node Rain Garden 4 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.706	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	3	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node Rain Garden 5 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.850	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node Rain Garden 6 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.250	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	13.000		

Node Rain Garden 7 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.040	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node Permeable Paving 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.950	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	23.250	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node Permeable Paving 4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.860	Slope (1:X)	140.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	32.500	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node Permeable Paving 5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.550	Slope (1:X)	143.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	97	Depth (m)	
Safety Factor	2.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.30	Length (m)	18.200		

Node Attenuation Tank 3 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.530	Depth (m)	1.350
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	16.800	Number Required	1
Porosity	0.95	Pit Length (m)	16.800		



Node Attenuation Tank 4 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.905	Depth (m)	1.050
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	4.800	Number Required	1
Porosity	0.95	Pit Length (m)	28.000		

Node Attenuation Tank 5 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.400	Depth (m)	1.350
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	4.800	Number Required	1
Porosity	0.95	Pit Length (m)	29.600		

Node Attenuation Tank 9 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.072	Depth (m)	1.320
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	5.600	Number Required	1
Porosity	0.95	Pit Length (m)	14.400		

Node Attenuation Tank 10 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.593	Depth (m)	1.320
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	9.600	Number Required	1
Porosity	0.95	Pit Length (m)	12.000		

Node Attenuation Tank 6 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.880	Depth (m)	0.690
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	36	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	2.400	Number Required	1
Porosity	0.95	Pit Length (m)	17.600		

Node Attenuation Tank 7 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.450	Depth (m)	1.050
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	52	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.200	Number Required	1
Porosity	0.95	Pit Length (m)	13.600		



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	Attenuation Tank 6	70	54.958	0.078	4.6	3.1615	0.0000	OK
15 minute summer	54	10	55.111	0.034	2.0	0.0484	0.0000	OK
15 minute summer	53	10	54.885	0.041	3.0	0.0649	0.0000	OK
15 minute summer	52	11	54.819	0.061	6.7	0.1072	0.0000	OK
30 minute summer	Permeable Paving 2	23	57.089	0.139	1.9	0.5764	0.0000	SURCHARGED
15 minute summer	50	10	56.231	0.046	4.9	0.0930	0.0000	OK
15 minute summer	49	10	55.843	0.065	10.1	0.1091	0.0000	OK
30 minute summer	Attenuation Tank 1	21	55.599	0.067	15.7	4.8780	0.0000	OK
15 minute summer	J1	1	54.840	0.000	2.4	0.0000	0.0000	OK
15 minute summer	46	10	55.430	0.032	2.5	0.0456	0.0000	OK
15 minute summer	45	11	56.049	0.038	3.4	0.0599	0.0000	OK
120 minute summer	Attenuation Tank 2	70	55.147	0.092	15.3	5.7380	0.0000	OK
15 minute summer	43	10	56.198	0.045	6.7	0.0860	0.0000	OK
30 minute summer	42	20	55.197	0.086	12.7	0.0977	0.0000	OK
30 minute summer	Attenuation Tank 8	22	55.483	0.064	14.2	4.2643	0.0000	OK
15 minute summer	40	11	56.290	0.036	2.9	0.0558	0.0000	OK
15 minute summer	5	10	55.765	0.067	8.2	0.0993	0.0000	OK
30 minute summer	48	21	55.354	0.080	9.9	0.1006	0.0000	OK
120 minute summer	Attenuation Tank 9	80	55.186	0.114	10.0	8.7886	0.0000	OK
15 minute summer	36	10	55.629	0.041	5.2	0.0715	0.0000	OK
120 minute summer	35	76	55.188	0.256	10.3	0.5279	0.0000	OK
15 minute summer	34	11	54.863	0.082	13.7	0.1839	0.0000	OK
15 minute summer	Rain Garden 2	12	56.402	0.035	2.5	0.4205	0.0000	OK
15 minute summer	31	10	57.189	0.041	6.2	0.0780	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	Attenuation Tank 6	Hydro-Brake®	J1	3.2				9.0
15 minute summer	54	36.000	Attenuation Tank 6	2.0	0.665	0.108	0.0348	
15 minute summer	53	24.000	52	2.9	0.437	0.073	0.0981	
15 minute summer	52	24.001	2	6.6	0.775	0.154	0.1580	
30 minute summer	Permeable Paving 2	Orifice	48	0.5				
15 minute summer	50	21.000	49	4.8	0.641	0.092	0.3127	
15 minute summer	49	21.001	Attenuation Tank 1	10.1	1.509	0.162	0.1400	
30 minute summer	Attenuation Tank 1	21.002	48	8.6	0.769	0.194	0.3970	
15 minute summer	46	34.000	56	2.4	0.919	0.094	0.0541	
15 minute summer	45	28.000	Attenuation Tank 8	3.3	0.947	0.141	0.1033	
120 minute summer	Attenuation Tank 2	25.004	4	14.2	0.781	0.201	0.3697	
15 minute summer	43	31.001	42	6.6	1.508	0.187	0.1001	
30 minute summer	42	25.003	Attenuation Tank 2	12.7	0.863	0.180	0.2273	
30 minute summer	Attenuation Tank 8	25.002	42	8.4	0.916	0.172	0.2438	
15 minute summer	40	25.000	5	2.8	0.888	0.122	0.0904	
15 minute summer	5	25.001	Attenuation Tank 8	8.3	1.242	0.175	0.2638	
30 minute summer	48	21.003	Attenuation Tank 9	9.9	1.126	0.250	0.3421	
120 minute summer	Attenuation Tank 9	21.004	35	7.8	0.533	0.194	0.2939	
15 minute summer	36	23.000	35	5.1	0.739	0.073	0.3782	
120 minute summer	35	21.005	34	7.2	0.649	0.101	0.4409	
15 minute summer	34	21.006	2	13.1	0.859	0.159	0.6204	
15 minute summer	Rain Garden 2	12.000	28	2.0	0.829	0.257	0.0168	
15 minute summer	31	35.000	Attenuation Tank 7	6.1	1.670	0.161	0.3642	



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	Attenuation Tank 7	70	54.546	0.096	6.3	4.0021	0.0000	OK
15 minute summer	Rain Garden 1	11	56.532	0.028	2.6	0.3342	0.0000	OK
15 minute summer	28	11	55.432	0.057	6.9	0.0855	0.0000	OK
15 minute summer	27	10	55.284	0.068	8.0	0.1452	0.0000	OK
15 minute summer	26	10	55.333	0.061	8.0	0.1278	0.0000	OK
15 minute summer	25	11	55.098	0.115	22.8	0.1305	0.0000	OK
15 minute summer	Rain Garden 3	11	56.889	0.016	1.8	0.1275	0.0000	OK
15 minute summer	Rain Garden 4	11	56.724	0.018	1.8	0.1722	0.0000	OK
120 minute summer	Attenuation Tank 4	70	54.988	0.083	15.5	10.5931	0.0000	OK
15 minute summer	21	10	56.585	0.042	4.1	0.0683	0.0000	OK
15 minute summer	20	10	56.900	0.031	2.6	0.0437	0.0000	OK
15 minute summer	19	11	56.358	0.052	9.8	0.0737	0.0000	OK
15 minute summer	18	10	56.240	0.044	4.2	0.0723	0.0000	OK
15 minute summer	17	11	56.038	0.042	4.2	0.0470	0.0000	OK
15 minute summer	16	11	55.665	0.095	17.1	0.1308	0.0000	OK
15 minute summer	15	11	55.560	0.096	22.0	0.1440	0.0000	OK
15 minute summer	14	11	55.327	0.109	28.9	0.1780	0.0000	OK
15 minute summer	9	10	55.896	0.069	11.1	0.1696	0.0000	OK
15 minute summer	12	10	57.037	0.031	2.7	0.0464	0.0000	OK
15 minute summer	11	11	56.300	0.053	6.6	0.0804	0.0000	OK
15 minute summer	10	10	55.951	0.072	10.0	0.1016	0.0000	OK
120 minute summer	Attenuation Tank 10	68	55.686	0.093	17.1	10.3778	0.0000	OK
120 minute summer	8	68	55.660	0.090	15.2	0.1381	0.0000	OK
15 minute summer	7	10	56.169	0.045	4.8	0.0776	0.0000	OK
240 minute summer	Attenuation Tank 5	156	55.629	0.229	19.1	30.9528	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	Attenuation Tank 7	Hydro-Brake®	J2	4.3				12.4
15 minute summer	Rain Garden 1	13.000	28	2.2	1.265	0.163	0.0088	
15 minute summer	28	11.001	25	6.8	1.129	0.287	0.0825	
15 minute summer	27	14.000	25	7.8	0.794	0.188	0.2443	
15 minute summer	26	15.000	25	7.8	0.910	0.155	0.1967	
15 minute summer	25	11.002	Attenuation Tank 4	22.8	1.716	0.322	0.3014	
15 minute summer	Rain Garden 3	18.000	Attenuation Tank 4	1.8	2.170	0.057	0.0040	
15 minute summer	Rain Garden 4	17.000	Attenuation Tank 4	1.8	1.801	0.072	0.0067	
120 minute summer	Attenuation Tank 4	11.003	24	11.5	0.740	0.162	0.2227	
15 minute summer	21	8.000	19	4.0	0.674	0.078	0.1431	
15 minute summer	20	9.000	19	2.6	1.011	0.087	0.0459	
15 minute summer	19	8.001	16	9.7	1.429	0.112	0.1630	
15 minute summer	18	7.000	17	4.2	0.810	0.080	0.1046	
15 minute summer	17	7.001	16	4.1	0.822	0.073	0.1506	
15 minute summer	16	7.002	15	17.2	0.887	0.201	0.3460	
15 minute summer	15	7.003	14	22.1	1.038	0.216	0.6162	
15 minute summer	14	7.004	24	28.3	1.262	0.268	0.9217	
15 minute summer	9	5.000	Attenuation Tank 5	10.9	1.065	0.201	0.2612	
15 minute summer	12	1.000	11	2.6	0.998	0.094	0.0723	
15 minute summer	11	1.001	10	6.6	0.942	0.117	0.1757	
15 minute summer	10	1.002	Attenuation Tank 10	10.2	0.994	0.120	0.6070	
120 minute summer	Attenuation Tank 10	1.003	8	13.5	0.749	0.189	0.1006	
120 minute summer	8	1.004	Attenuation Tank 5	15.2	0.870	0.191	0.3868	
15 minute summer	7	4.000	Attenuation Tank 5	4.7	1.080	0.189	0.1113	
240 minute summer	Attenuation Tank 5	Hydro-Brake®	58	9.3				



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event		US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	24		164	54.773	0.152	32.0	0.3120	0.0000	OK
240 minute summer	6		192	54.549	0.085	19.0	0.1686	0.0000	OK
240 minute summer	2		144	54.455	0.199	29.4	0.9634	0.0000	OK
15 minute summer	1		1	54.240	0.000	24.6	0.0000	0.0000	OK
15 minute summer	47		10	55.185	0.051	5.3	0.0938	0.0000	OK
120 minute summer	56		70	54.917	0.177	16.6	0.6826	0.0000	OK
240 minute summer	Attenuation Tank 3		168	54.769	0.239	34.8	64.2739	0.0000	OK
15 minute summer	57		12	56.272	0.022	1.3	0.0253	0.0000	OK
240 minute summer	58		144	55.177	0.048	9.7	0.0680	0.0000	OK
15 minute summer	Rain Garden 5		12	56.880	0.030	1.8	0.2857	0.0000	OK
15 minute summer	Rain Garden 6		11	57.278	0.028	1.6	0.2190	0.0000	OK
15 minute summer	Rain Garden 7		11	57.065	0.025	2.2	0.2380	0.0000	OK
240 minute summer	Permeable Paving 1		156	57.069	0.169	2.1	3.2740	0.0000	SURCHARGED
120 minute summer	4		70	55.063	0.091	14.2	0.1032	0.0000	OK
120 minute summer	Permeable Paving 3		82	57.139	0.099	1.7	1.5219	0.0000	OK
240 minute summer	Permeable Paving 4		152	56.913	0.103	1.5	2.0293	0.0000	SURCHARGED
15 minute summer	Permeable Paving 5		14	56.593	0.093	1.2	0.2583	0.0000	OK
240 minute summer	Permeable Paving 6		152	56.407	0.157	1.7	2.3156	0.0000	SURCHARGED
15 minute summer	J2		1	54.170	0.000	3.4	0.0000	0.0000	OK
240 minute summer	Permeable Paving 7		152	56.063	0.113	1.5	1.9616	0.0000	SURCHARGED
120 minute summer	Permeable Paving 8		82	57.085	0.135	2.0	1.7007	0.0000	SURCHARGED
120 minute summer	Permeable Paving 9		80	57.463	0.138	1.9	1.5728	0.0000	SURCHARGED
120 minute summer	Permeable Paving 10		80	57.213	0.138	1.9	1.5720	0.0000	SURCHARGED
30 minute summer	Permeable Paving 11		22	55.915	0.115	1.4	0.3466	0.0000	SURCHARGED
Link Event (Upstream Depth)		US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	24		1.007	Attenuation Tank 3	31.9	0.662	0.147	3.2880	
240 minute summer	6		1.009_1	2	19.0	0.823	0.056	0.8120	
240 minute summer	2		Hydro-Brake®	1	29.4				278.0
15 minute summer	47		37.000	Attenuation Tank 6	5.2	1.008	0.237	0.0605	
120 minute summer	56		Hydro-Brake®	J3	16.5				55.0
240 minute summer	Attenuation Tank 3		Hydro-Brake®	6	18.8				
15 minute summer	57		26.001	5	1.4	0.834	0.047	0.0293	
240 minute summer	58		1.006	24	9.7	1.224	0.033	0.1304	
15 minute summer	Rain Garden 5		6.000	58	1.5	0.768	0.193	0.0149	
15 minute summer	Rain Garden 6		26.000	57	1.3	0.743	0.170	0.0131	
15 minute summer	Rain Garden 7		29.000	Attenuation Tank 8	2.0	1.310	0.134	0.0268	
240 minute summer	Permeable Paving 1		Orifice	43	0.6				
120 minute summer	4		25.005	56	14.2	0.752	0.201	0.7520	
120 minute summer	Permeable Paving 3		Orifice	5	0.4				
240 minute summer	Permeable Paving 4		Orifice	Attenuation Tank 8	0.5				
15 minute summer	Permeable Paving 5		Orifice	42	0.4				
240 minute summer	Permeable Paving 6		Orifice	Attenuation Tank 2	0.6				
240 minute summer	Permeable Paving 7		Orifice	Attenuation Tank 3	0.5				
120 minute summer	Permeable Paving 8		Orifice	14	0.5				
120 minute summer	Permeable Paving 9		Orifice	10	0.5				
120 minute summer	Permeable Paving 10		Orifice	Attenuation Tank 10	0.5				
30 minute summer	Permeable Paving 11		Orifice	28	0.5				



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	Permeable Paving 12	80	56.207	0.162	2.2	1.9309	0.0000	SURCHARGED
240 minute summer	Permeable Paving 13	152	56.523	0.148	1.6	2.1467	0.0000	SURCHARGED
15 minute summer	J3	1	54.625	0.000	11.2	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	Permeable Paving 12	Orifice	25	0.6				
240 minute summer	Permeable Paving 13	Orifice	24	0.6				



Results for 30 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	Attenuation Tank 6	41	55.167	0.287	23.1	11.5507	0.0000	SURCHARGED
60 minute summer	54	41	55.167	0.090	5.5	0.1289	0.0000	OK
15 minute summer	53	10	54.926	0.082	11.7	0.1302	0.0000	OK
15 minute summer	52	10	54.893	0.135	26.6	0.2364	0.0000	OK
60 minute winter	Permeable Paving 2	50	57.246	0.296	4.1	3.8569	0.0000	FLOOD RISK
15 minute summer	50	10	56.279	0.094	19.5	0.1908	0.0000	OK
15 minute summer	49	10	55.913	0.135	40.0	0.2273	0.0000	OK
30 minute summer	Attenuation Tank 1	21	55.733	0.201	63.2	14.7372	0.0000	OK
15 minute summer	J1	1	54.840	0.000	7.9	0.0000	0.0000	OK
60 minute summer	46	45	55.577	0.179	6.7	0.2583	0.0000	SURCHARGED
15 minute summer	45	10	56.093	0.082	13.6	0.1282	0.0000	OK
60 minute summer	Attenuation Tank 2	46	55.594	0.539	65.4	33.4714	0.0000	SURCHARGED
15 minute summer	43	10	56.251	0.098	25.1	0.1882	0.0000	OK
60 minute summer	42	46	55.596	0.485	53.9	0.5490	0.0000	SURCHARGED
60 minute summer	Attenuation Tank 8	46	55.604	0.185	43.0	12.3899	0.0000	OK
15 minute summer	40	10	56.330	0.076	11.4	0.1177	0.0000	OK
15 minute summer	5	10	55.836	0.138	32.4	0.2042	0.0000	OK
120 minute summer	48	98	55.696	0.422	31.0	0.5298	0.0000	SURCHARGED
120 minute summer	Attenuation Tank 9	98	55.692	0.620	37.7	47.6067	0.0000	SURCHARGED
120 minute summer	36	98	55.691	0.103	9.0	0.1792	0.0000	OK
120 minute summer	35	98	55.691	0.759	15.6	1.5665	0.0000	SURCHARGED
15 minute summer	34	10	54.930	0.149	40.5	0.3342	0.0000	OK
15 minute summer	Rain Garden 2	12	56.464	0.097	10.0	1.1505	0.0000	OK
15 minute summer	31	10	57.235	0.087	24.4	0.1662	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	Attenuation Tank 6	Hydro-Brake®	J1	8.0				24.5
60 minute summer	54	36.000	Attenuation Tank 6	5.5	0.777	0.305	0.1699	
15 minute summer	53	24.000	52	11.6	0.612	0.290	0.2748	
15 minute summer	52	24.001	2	26.0	1.096	0.607	0.5280	
60 minute winter	Permeable Paving 2	Orifice	48	0.8				
15 minute summer	50	21.000	49	19.2	0.945	0.371	0.8326	
15 minute summer	49	21.001	Attenuation Tank 1	39.4	1.747	0.633	0.4866	
30 minute summer	Attenuation Tank 1	21.002	48	39.2	1.126	0.884	1.3650	
60 minute summer	46	34.000	56	6.7	1.003	0.258	0.3579	
15 minute summer	45	28.000	Attenuation Tank 8	13.3	1.369	0.563	0.2851	
60 minute summer	Attenuation Tank 2	25.004	4	32.3	0.942	0.457	1.4277	
15 minute summer	43	31.001	42	24.9	2.098	0.706	0.2721	
60 minute summer	42	25.003	Attenuation Tank 2	50.3	0.967	0.711	0.9651	
60 minute summer	Attenuation Tank 8	25.002	42	36.4	1.241	0.750	0.9981	
15 minute summer	40	25.000	5	11.1	1.281	0.480	0.2465	
15 minute summer	5	25.001	Attenuation Tank 8	32.4	1.473	0.679	0.8763	
120 minute summer	48	21.003	Attenuation Tank 9	30.0	0.792	0.755	1.3641	
120 minute summer	Attenuation Tank 9	21.004	35	7.7	0.520	0.192	0.4329	
120 minute summer	36	23.000	35	9.0	0.632	0.129	0.9233	
120 minute summer	35	21.005	34	8.0	0.693	0.113	0.6365	
15 minute summer	34	21.006	2	41.7	1.132	0.505	1.9553	
15 minute summer	Rain Garden 2	12.000	28	8.0	1.104	1.021	0.0520	
15 minute summer	31	35.000	Attenuation Tank 7	24.2	1.834	0.636	0.8434	



Results for 30 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	Attenuation Tank 7	42	54.864	0.414	32.0	17.3144	0.0000	SURCHARGED
15 minute summer	Rain Garden 1	11	56.570	0.066	10.1	0.7834	0.0000	OK
15 minute summer	28	11	55.645	0.270	27.3	0.4018	0.0000	SURCHARGED
15 minute summer	27	10	55.371	0.155	31.3	0.3326	0.0000	OK
15 minute summer	26	10	55.408	0.136	31.3	0.2834	0.0000	OK
15 minute summer	25	11	55.226	0.243	87.8	0.2746	0.0000	OK
15 minute summer	Rain Garden 3	10	56.906	0.033	7.2	0.2539	0.0000	OK
15 minute summer	Rain Garden 4	10	56.743	0.037	7.2	0.3474	0.0000	OK
240 minute summer	Attenuation Tank 4	240	55.187	0.282	29.9	36.0016	0.0000	OK
15 minute summer	21	10	56.630	0.087	16.0	0.1407	0.0000	OK
15 minute summer	20	10	56.932	0.063	10.2	0.0904	0.0000	OK
15 minute summer	19	10	56.410	0.104	38.6	0.1481	0.0000	OK
15 minute summer	18	10	56.287	0.091	16.5	0.1486	0.0000	OK
15 minute summer	17	11	56.078	0.082	16.4	0.0929	0.0000	OK
15 minute summer	16	11	55.802	0.232	68.1	0.3182	0.0000	OK
15 minute summer	15	11	55.699	0.235	86.4	0.3515	0.0000	OK
15 minute summer	14	12	55.517	0.299	112.5	0.4885	0.0000	OK
120 minute winter	9	118	56.030	0.203	13.3	0.4978	0.0000	OK
15 minute summer	12	10	57.072	0.066	10.8	0.0970	0.0000	OK
15 minute summer	11	10	56.360	0.113	26.5	0.1718	0.0000	OK
120 minute winter	10	116	56.031	0.152	12.4	0.2157	0.0000	OK
120 minute winter	Attenuation Tank 10	118	56.031	0.438	37.4	48.7835	0.0000	SURCHARGED
120 minute winter	8	118	56.031	0.461	29.4	0.7059	0.0000	SURCHARGED
15 minute summer	7	10	56.224	0.100	19.0	0.1733	0.0000	OK
120 minute winter	Attenuation Tank 5	118	56.030	0.630	48.5	85.2011	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	Attenuation Tank 7	Hydro-Brake®	J2	8.5				33.8
15 minute summer	Rain Garden 1	13.000	28	9.5	1.814	0.694	0.0261	
15 minute summer	28	11.001	25	26.4	1.502	1.117	0.2380	
15 minute summer	27	14.000	25	30.9	1.054	0.749	0.7497	
15 minute summer	26	15.000	25	30.9	1.142	0.617	0.6427	
15 minute summer	25	11.002	Attenuation Tank 4	87.1	2.114	1.230	0.9870	
15 minute summer	Rain Garden 3	18.000	Attenuation Tank 4	7.1	3.235	0.225	0.0106	
15 minute summer	Rain Garden 4	17.000	Attenuation Tank 4	7.0	2.682	0.287	0.0181	
240 minute summer	Attenuation Tank 4	11.003	24	27.3	0.939	0.384	0.9966	
15 minute summer	21	8.000	19	15.8	0.987	0.306	0.3833	
15 minute summer	20	9.000	19	10.1	1.470	0.344	0.1242	
15 minute summer	19	8.001	16	38.3	1.801	0.443	0.5686	
15 minute summer	18	7.000	17	16.4	1.163	0.316	0.2838	
15 minute summer	17	7.001	16	16.1	0.967	0.288	0.6460	
15 minute summer	16	7.002	15	67.6	1.150	0.792	1.0521	
15 minute summer	15	7.003	14	86.8	1.364	0.849	1.8761	
15 minute summer	14	7.004	24	108.1	1.698	1.022	2.7425	
120 minute winter	9	5.000	Attenuation Tank 5	13.3	1.012	0.246	0.9915	
15 minute summer	12	1.000	11	10.6	1.462	0.377	0.1989	
15 minute summer	11	1.001	10	26.1	1.358	0.465	0.4850	
120 minute winter	10	1.002	Attenuation Tank 10	12.4	0.737	0.145	2.5721	
120 minute winter	Attenuation Tank 10	1.003	8	25.1	0.830	0.351	0.3891	
120 minute winter	8	1.004	Attenuation Tank 5	28.8	0.897	0.362	1.2971	
15 minute summer	7	4.000	Attenuation Tank 5	18.7	1.531	0.752	0.3128	
120 minute winter	Attenuation Tank 5	Hydro-Brake®	58	10.0				



Results for 30 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	24	240	55.187	0.566	74.8	1.1633	0.0000	SURCHARGED
30 minute summer	6	21	54.864	0.400	21.1	0.7957	0.0000	OK
30 minute summer	2	21	54.868	0.612	74.9	2.9678	0.0000	SURCHARGED
15 minute summer	1	1	54.240	0.000	50.0	0.0000	0.0000	OK
15 minute summer	47	10	55.255	0.121	20.7	0.2236	0.0000	OK
60 minute summer	56	45	55.576	0.836	34.4	3.2204	0.0000	SURCHARGED
240 minute summer	Attenuation Tank 3	240	55.186	0.656	78.1	176.3336	0.0000	SURCHARGED
15 minute summer	57	11	56.296	0.046	5.9	0.0518	0.0000	OK
30 minute summer	58	19	55.188	0.059	15.9	0.0838	0.0000	OK
15 minute summer	Rain Garden 5	11	56.923	0.073	7.2	0.6897	0.0000	OK
15 minute summer	Rain Garden 6	11	57.317	0.067	6.3	0.5191	0.0000	OK
15 minute summer	Rain Garden 7	11	57.093	0.053	8.5	0.5100	0.0000	OK
120 minute winter	Permeable Paving 1	118	57.206	0.306	6.5	14.3341	0.0000	FLOOD RISK
60 minute summer	4	46	55.588	0.616	32.3	0.6961	0.0000	SURCHARGED
120 minute winter	Permeable Paving 3	114	57.218	0.178	3.9	7.8078	0.0000	SURCHARGED
120 minute winter	Permeable Paving 4	116	56.993	0.183	4.6	9.7193	0.0000	SURCHARGED
60 minute summer	Permeable Paving 5	45	56.678	0.178	3.4	2.0214	0.0000	SURCHARGED
120 minute winter	Permeable Paving 6	116	56.539	0.289	5.2	10.6878	0.0000	FLOOD RISK
15 minute summer	J2	1	54.170	0.000	8.4	0.0000	0.0000	OK
120 minute winter	Permeable Paving 7	116	56.150	0.200	4.6	9.5719	0.0000	SURCHARGED
120 minute winter	Permeable Paving 8	114	57.199	0.249	4.4	8.6068	0.0000	FLOOD RISK
120 minute winter	Permeable Paving 9	106	57.582	0.257	4.2	8.0400	0.0000	FLOOD RISK
120 minute summer	Permeable Paving 10	100	57.330	0.255	6.0	7.9012	0.0000	FLOOD RISK
60 minute summer	Permeable Paving 11	46	56.040	0.240	4.2	2.5719	0.0000	FLOOD RISK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	24	1.007	Attenuation Tank 3	70.4	0.799	0.324	9.6439	
30 minute summer	6	1.009_1	2	26.9	0.860	0.079	5.2900	
30 minute summer	2	Hydro-Brake®	1	50.0				399.4
15 minute summer	47	37.000	Attenuation Tank 6	20.4	1.381	0.928	0.1767	
60 minute summer	56	Hydro-Brake®	J3	22.0				140.5
240 minute summer	Attenuation Tank 3	Hydro-Brake®	6	20.0				
15 minute summer	57	26.001	5	5.9	1.210	0.202	0.1038	
30 minute summer	58	1.006	24	15.9	1.133	0.054	0.7186	
15 minute summer	Rain Garden 5	6.000	58	6.5	1.093	0.831	0.0451	
15 minute summer	Rain Garden 6	26.000	57	5.9	1.075	0.747	0.0398	
15 minute summer	Rain Garden 7	29.000	Attenuation Tank 8	8.2	1.928	0.554	0.0751	
120 minute winter	Permeable Paving 1	Orifice	43	0.8				
60 minute summer	4	25.005	56	22.4	0.714	0.316	2.6997	
120 minute winter	Permeable Paving 3	Orifice	5	0.6				
120 minute winter	Permeable Paving 4	Orifice	Attenuation Tank 8	0.6				
60 minute summer	Permeable Paving 5	Orifice	42	0.6				
120 minute winter	Permeable Paving 6	Orifice	Attenuation Tank 2	0.8				
120 minute winter	Permeable Paving 7	Orifice	Attenuation Tank 3	0.7				
120 minute winter	Permeable Paving 8	Orifice	14	0.7				
120 minute winter	Permeable Paving 9	Orifice	10	0.8				
120 minute summer	Permeable Paving 10	Orifice	Attenuation Tank 10	0.7				
60 minute summer	Permeable Paving 11	Orifice	28	0.7				



Results for 30 year Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	Permeable Paving 12	112	56.355	0.310	4.8	9.5417	0.0000	FLOOD RISK
120 minute winter	Permeable Paving 13	114	56.648	0.273	5.1	10.4582	0.0000	FLOOD RISK
15 minute summer	J3	1	54.625	0.000	22.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	Permeable Paving 12	Orifice	25	0.8				
120 minute winter	Permeable Paving 13	Orifice	24	0.8				



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	Attenuation Tank 6	47	55.929	1.049	44.3	27.9151	0.0000	FLOOD RISK
60 minute summer	54	47	55.931	0.854	11.4	1.2487	0.0000	FLOOD RISK
30 minute summer	53	19	55.843	0.999	21.8	1.6250	0.0000	FLOOD RISK
30 minute summer	52	19	55.796	1.038	48.8	1.8871	4.0685	FLOOD
60 minute winter	Permeable Paving 2	60	57.392	0.442	8.4	9.5709	0.0000	FLOOD RISK
15 minute summer	50	12	56.442	0.257	39.2	0.5441	0.0000	SURCHARGED
120 minute winter	49	116	56.388	0.610	24.6	1.0593	0.0000	SURCHARGED
120 minute winter	Attenuation Tank 1	118	56.388	0.856	42.3	50.7130	0.0000	SURCHARGED
15 minute summer	J1	1	54.840	0.000	8.0	0.0000	0.0000	OK
60 minute winter	46	58	56.305	0.907	10.0	1.3363	0.0000	SURCHARGED
60 minute winter	45	59	56.338	0.327	13.9	0.5257	0.0000	SURCHARGED
60 minute winter	Attenuation Tank 2	59	56.322	1.267	74.6	65.4582	0.0000	SURCHARGED
15 minute summer	43	12	57.139	0.986	50.1	1.9654	0.0000	SURCHARGED
60 minute winter	42	59	56.325	1.214	56.6	1.3732	0.0000	SURCHARGED
60 minute winter	Attenuation Tank 8	60	56.335	0.916	63.0	61.4281	0.0000	SURCHARGED
15 minute summer	40	12	56.532	0.278	22.9	0.4444	0.0000	SURCHARGED
60 minute winter	5	59	56.338	0.640	34.3	0.9673	0.0000	SURCHARGED
120 minute winter	48	118	56.385	1.111	30.5	1.4085	0.0000	SURCHARGED
120 minute winter	Attenuation Tank 9	120	56.381	1.309	38.9	100.4879	0.0000	SURCHARGED
120 minute winter	36	120	56.378	0.790	12.4	1.4283	0.0000	SURCHARGED
120 minute winter	35	120	56.379	1.447	20.8	3.0307	0.0000	SURCHARGED
15 minute summer	34	12	55.885	1.104	71.1	2.5912	0.0000	FLOOD RISK
15 minute summer	Rain Garden 2	13	56.652	0.285	20.1	3.4204	0.0000	FLOOD RISK
15 minute summer	31	12	58.155	1.007	49.1	2.0020	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	Attenuation Tank 6	Hydro-Brake®	J1	8.0				50.3
60 minute summer	54	36.000	Attenuation Tank 6	10.1	0.706	0.560	0.2089	
30 minute summer	53	24.000	52	23.5	0.639	0.588	0.5763	
30 minute summer	52	24.001	2	35.4	1.124	0.825	0.7386	
60 minute winter	Permeable Paving 2	Orifice	48	1.0				
15 minute summer	50	21.000	49	35.6	1.029	0.688	1.6296	
120 minute winter	49	21.001	Attenuation Tank 1	24.5	1.201	0.393	0.6860	
120 minute winter	Attenuation Tank 1	21.002	48	26.9	0.985	0.606	1.4048	
60 minute winter	46	34.000	56	8.8	0.971	0.338	0.3579	
60 minute winter	45	28.000	Attenuation Tank 8	13.9	1.289	0.588	0.5159	
60 minute winter	Attenuation Tank 2	25.004	4	30.6	0.923	0.432	1.4277	
15 minute summer	43	31.001	42	41.5	2.358	1.179	0.4042	
60 minute winter	42	25.003	Attenuation Tank 2	53.8	0.957	0.761	0.9651	
60 minute winter	Attenuation Tank 8	25.002	42	36.0	1.208	0.742	1.0630	
15 minute summer	40	25.000	5	20.9	1.345	0.899	0.4984	
60 minute winter	5	25.001	Attenuation Tank 8	33.9	1.174	0.710	1.3152	
120 minute winter	48	21.003	Attenuation Tank 9	28.7	0.999	0.722	1.3641	
120 minute winter	Attenuation Tank 9	21.004	35	-12.1	-0.305	-0.303	0.4329	
120 minute winter	36	23.000	35	11.7	0.682	0.166	1.2792	
120 minute winter	35	21.005	34	10.6	0.687	0.150	2.5985	
15 minute summer	34	21.006	2	67.6	1.150	0.818	2.8503	
15 minute summer	Rain Garden 2	12.000	28	11.9	1.525	1.516	0.0538	
15 minute summer	31	35.000	Attenuation Tank 7	38.8	2.202	1.021	1.0534	



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	Attenuation Tank 7	52	55.954	1.504	65.4	44.2336	0.0000	SURCHARGED
15 minute summer	Rain Garden 1	12	56.695	0.191	20.3	2.2887	0.0000	FLOOD RISK
15 minute summer	28	12	56.408	1.033	42.3	1.5755	0.0000	FLOOD RISK
15 minute summer	27	11	56.003	0.787	63.0	1.7713	0.0000	SURCHARGED
15 minute summer	26	11	55.977	0.705	63.0	1.5333	0.0000	SURCHARGED
240 minute summer	25	244	55.846	0.863	50.4	0.9759	0.0000	SURCHARGED
15 minute summer	Rain Garden 3	10	56.921	0.048	14.5	0.3764	0.0000	OK
15 minute summer	Rain Garden 4	10	56.761	0.055	14.5	0.5237	0.0000	OK
240 minute summer	Attenuation Tank 4	244	55.846	0.941	57.0	120.1221	0.0000	SURCHARGED
15 minute summer	21	12	57.475	0.932	32.3	1.5526	0.0000	SURCHARGED
15 minute summer	20	12	57.551	0.682	20.4	0.9979	0.0000	SURCHARGED
15 minute summer	19	12	57.413	1.107	74.5	1.6057	0.0000	SURCHARGED
15 minute summer	18	12	57.207	1.011	33.3	1.6993	0.0000	SURCHARGED
15 minute summer	17	12	57.147	1.151	37.0	1.3020	0.0000	SURCHARGED
15 minute summer	16	12	57.062	1.492	102.4	2.0830	0.0000	SURCHARGED
15 minute summer	15	12	56.848	1.384	133.1	2.1205	0.0000	SURCHARGED
15 minute summer	14	12	56.318	1.100	177.0	1.8552	0.0000	SURCHARGED
240 minute winter	9	236	56.869	1.042	15.7	2.6933	0.0000	SURCHARGED
15 minute summer	12	10	57.107	0.101	21.8	0.1526	0.0000	OK
240 minute winter	11	236	56.870	0.623	9.6	0.9711	0.0000	SURCHARGED
240 minute winter	10	236	56.870	0.991	14.7	1.4353	0.0000	SURCHARGED
240 minute winter	Attenuation Tank 10	236	56.870	1.277	43.1	142.4830	0.0000	SURCHARGED
240 minute winter	8	236	56.870	1.300	20.1	2.0434	0.0000	SURCHARGED
240 minute winter	7	236	56.870	0.746	6.9	1.3419	0.0000	SURCHARGED
240 minute winter	Attenuation Tank 5	236	56.869	1.469	44.5	182.7156	0.0000	FLOOD RISK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	Attenuation Tank 7	Hydro-Brake®	J2	8.5				69.8
15 minute summer	Rain Garden 1	13.000	28	14.5	1.875	1.058	0.0388	
15 minute summer	28	11.001	25	38.4	2.183	1.624	0.2413	
15 minute summer	27	14.000	25	59.0	1.485	1.430	0.9916	
15 minute summer	26	15.000	25	59.2	1.489	1.180	0.9121	
240 minute summer	25	11.002	Attenuation Tank 4	49.3	1.109	0.695	1.3397	
15 minute summer	Rain Garden 3	18.000	Attenuation Tank 4	14.3	3.914	0.456	0.0177	
15 minute summer	Rain Garden 4	17.000	Attenuation Tank 4	14.2	3.219	0.581	0.0306	
240 minute summer	Attenuation Tank 4	11.003	24	27.7	0.891	0.390	1.0088	
15 minute summer	21	8.000	19	30.7	1.053	0.593	0.9485	
15 minute summer	20	9.000	19	19.5	1.595	0.667	0.3190	
15 minute summer	19	8.001	16	58.5	1.784	0.676	0.9557	
15 minute summer	18	7.000	17	31.9	1.306	0.616	0.8018	
15 minute summer	17	7.001	16	28.9	0.918	0.516	1.2045	
15 minute summer	16	7.002	15	106.9	1.518	1.253	1.2594	
15 minute summer	15	7.003	14	133.4	1.895	1.304	2.0408	
15 minute summer	14	7.004	24	176.6	2.508	1.669	2.8869	
240 minute winter	9	5.000	Attenuation Tank 5	15.0	0.824	0.278	1.0175	
15 minute summer	12	1.000	11	21.7	1.662	0.769	0.3683	
240 minute winter	11	1.001	10	9.6	1.015	0.171	1.0000	
240 minute winter	10	1.002	Attenuation Tank 10	13.8	0.693	0.162	3.4100	
240 minute winter	Attenuation Tank 10	1.003	8	15.0	0.755	0.210	0.3891	
240 minute winter	8	1.004	Attenuation Tank 5	19.7	0.761	0.248	1.2971	
240 minute winter	7	4.000	Attenuation Tank 5	6.8	0.898	0.273	0.4504	
240 minute winter	Attenuation Tank 5	Hydro-Brake®	58	10.0				



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	24	244	55.846	1.225	95.1	2.5534	0.0000	SURCHARGED
30 minute summer	6	20	55.804	1.340	42.7	2.6974	0.0000	SURCHARGED
30 minute summer	2	19	55.783	1.527	107.8	7.4487	2.5969	FLOOD
15 minute summer	1	1	54.240	0.000	50.0	0.0000	0.0000	OK
60 minute summer	47	47	55.940	0.806	29.3	1.5447	0.0000	SURCHARGED
60 minute winter	56	58	56.303	1.563	31.5	6.0811	0.0000	FLOOD RISK
240 minute summer	Attenuation Tank 3	244	55.845	1.315	108.3	353.5536	0.0000	SURCHARGED
60 minute winter	57	59	56.339	0.089	6.3	0.1002	0.0000	OK
240 minute summer	58	244	55.846	0.717	13.2	1.0262	0.0000	SURCHARGED
15 minute summer	Rain Garden 5	12	57.045	0.195	14.5	1.8510	0.0000	FLOOD RISK
15 minute summer	Rain Garden 6	12	57.421	0.171	12.6	1.3315	0.0000	FLOOD RISK
15 minute summer	Rain Garden 7	11	57.132	0.092	17.1	0.8855	0.0000	OK
240 minute winter	Permeable Paving 1	232	57.348	0.448	7.7	33.2594	0.0000	FLOOD RISK
60 minute winter	4	59	56.315	1.343	30.6	1.5195	0.0000	FLOOD RISK
120 minute winter	Permeable Paving 3	118	57.342	0.302	7.8	18.2310	0.0000	FLOOD RISK
240 minute winter	Permeable Paving 4	228	57.121	0.311	5.4	22.2880	0.0000	FLOOD RISK
60 minute winter	Permeable Paving 5	58	56.782	0.282	5.0	5.1810	0.0000	FLOOD RISK
240 minute winter	Permeable Paving 6	228	56.672	0.422	6.2	24.8754	0.0000	FLOOD RISK
15 minute summer	J2	1	54.170	0.000	8.5	0.0000	0.0000	OK
240 minute winter	Permeable Paving 7	228	56.277	0.327	5.4	22.1614	0.0000	FLOOD RISK
120 minute winter	Permeable Paving 8	118	57.325	0.375	8.8	20.4221	0.0000	FLOOD RISK
120 minute winter	Permeable Paving 9	118	57.708	0.383	8.4	19.2062	0.0000	FLOOD RISK
120 minute winter	Permeable Paving 10	118	57.455	0.380	8.3	18.9560	0.0000	FLOOD RISK
60 minute summer	Permeable Paving 11	56	56.164	0.364	8.7	6.8245	0.0000	FLOOD RISK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	24	1.007	Attenuation Tank 3	93.2	0.999	0.429	9.6439	
30 minute summer	6	1.009_1	2	26.3	0.713	0.078	5.8245	
30 minute summer	2	Hydro-Brake®	1	50.0				448.0
60 minute summer	47	37.000	Attenuation Tank 6	27.3	1.551	1.242	0.2064	
60 minute winter	56	Hydro-Brake®	J3	22.0				260.2
240 minute summer	Attenuation Tank 3	Hydro-Brake®	6	20.0				
60 minute winter	57	26.001	5	6.3	1.133	0.219	0.2570	
240 minute summer	58	1.006	24	13.2	1.257	0.045	1.8217	
15 minute summer	Rain Garden 5	6.000	58	9.8	1.259	1.252	0.0583	
15 minute summer	Rain Garden 6	26.000	57	9.4	1.202	1.193	0.0561	
15 minute summer	Rain Garden 7	29.000	Attenuation Tank 8	15.8	2.122	1.069	0.1344	
240 minute winter	Permeable Paving 1	Orifice	43	1.0				
60 minute winter	4	25.005	56	22.7	0.714	0.320	2.6997	
120 minute winter	Permeable Paving 3	Orifice	5	0.8				
240 minute winter	Permeable Paving 4	Orifice	Attenuation Tank 8	0.8				
60 minute winter	Permeable Paving 5	Orifice	42	0.8				
240 minute winter	Permeable Paving 6	Orifice	Attenuation Tank 2	1.0				
240 minute winter	Permeable Paving 7	Orifice	Attenuation Tank 3	0.9				
120 minute winter	Permeable Paving 8	Orifice	14	0.9				
120 minute winter	Permeable Paving 9	Orifice	10	0.9				
120 minute winter	Permeable Paving 10	Orifice	Attenuation Tank 10	0.9				
60 minute summer	Permeable Paving 11	Orifice	28	0.9				



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	Permeable Paving 12	118	56.497	0.452	9.7	22.4319	0.0000	FLOOD RISK
120 minute winter	Permeable Paving 13	120	56.778	0.403	10.2	24.3083	0.0000	FLOOD RISK
15 minute summer	J3	1	54.625	0.000	22.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	Permeable Paving 12	Orifice	25	1.0				
120 minute winter	Permeable Paving 13	Orifice	24	0.9				

Water Quality

Entering via Node or Link	Name	SuDS Component	Pollution hazard indices			Pollution mitigation indices			TSS	Cumulative hazard Metal
			TSS	Metals	Hydrocarbons	TSS	Metals	Hydrocarbons		
Node	J1								Sufficient	Sufficient
Node	Permeable Paving 9	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 10	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 8	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 11	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 12	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 13	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 7	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 2	Permeable Surface				0.7	0.6	0.7		
Node	1								Sufficient	Sufficient
Node	J2								Sufficient	Sufficient
Node	Permeable Paving 3	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 4	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 1	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 5	Permeable Surface				0.7	0.6	0.7		
Node	Permeable Paving 6	Permeable Surface				0.7	0.6	0.7		
Node	J3								Sufficient	Sufficient



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Water Quality

Intended Land Use	Entering via Node or Link	Name	SuDS Component	Pollution hazard indices			Pollution mitigation indices			Cumulative pollut hazard indices		
				TSS	Metals	Hydrocarbons	TSS	Metals	Hydrocarbons	TSS	Metals	Hydro